Contents

A BRIEF INTRODUCTION

You may be required one day to do a presentation at your place of work. Or perhaps you have already given presentations. Presentations can range from the introduction of a special topic, e.g. for a school course to presenting a company or its products. Giving a presentation can sometimes be a little intimidating, especially in a foreign language. However, it is an important skill that can be learned and improved. The purpose of the following tutorial is to introduce you the essentials of a good presentation and to help you improve your presentation skills.

While we will discuss some different modes of presentation and alternative forms of visual representation, our main focus will be on software presentations. This is due primarily to the fact that software presentations, or PowerPoint presentations as they are commonly referred to, are the standard form of presentation nowadays. These programs are also relatively easy to learn and offer an astonishing range of options for visual representations.

It would be a major mistake, though, to think that just by pasting together scraps of text, pictures and jazzy film clips that one can create an effective presentation. On the contrary, the content and the presenter him/herself are and have always been the essential elements which determine the impact of a presentation.

1.   DEFINITION

How can we define a presentation in the broader sense of the word? A presentation is essentially a monolingual form of communication. That is to say, one person takes on an active role in the communication, i.e. speaks, while the others remain passive, i.e. listen to the speaker. Some, usually less formal forms of presentation allow for interruptions. This could be a question, for example, if something wasn't understood properly or a request if the presenter is speaking too softly or quickly. It is generally considered inappropriate, however, to interrupt a speaker to air one's own views or opinions. Other more formal presentations, for example, funeral eulogies would not allow for any kind of interruption.

Presentations are usually, but not always, followed by a round of discussion. Some, many or all of the participants might take part in the discussion depending, naturally, on the size of the audience. Whether the presenter or a designated moderator or facilitator leads the discussion depends, again, on the size of the group and/or how formal the gathering is.

Presentations have in common the following characteristics:
- A single person
- is standing in front of a number of other people, whereby
- the attention of the "listeners" is focused on the speaker or communicator and
- the speaker is pursuing certain objectives.

Task 1.1:
What is the essential difference between the role of a presenter and the role of an audience in a presentation?

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Task 1.2:
Can a member of an audience ever speak up? If so, when and why?

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Task 1.3:
When are interruptions not suitable?

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2.   TYPES OF PRESENTATION

As stated in the introduction, the focus of this tutorial will be on preparing and implementing presentations with the aid of available software applications. Nonetheless, we would also like to briefly review some of the other more common types of presentation, namely speeches, toasts, talks, lectures and pitches.

2.1   Speeches

Speeches are usually held at ceremonial occasions to honor an event, e.g. the 1000th year jubilee of a city, or a person/s, e.g. a group of medical school graduates. Their purpose is less to convey any new information as to reflect, in common with others, on a certain topic. In the Anglo-American culture a certain entertainment value and even humor is expected in such speeches, even on otherwise solemn occasions such as funerals.

2.2   Political speech

The main purpose of a political speech is to give details or arguments of the politician's standpoint. The idea is to persuade the listeners of the soundness of these positions and, in consequence, to vote for the candidate.

2.3   Toast

Toasts are short speeches given at weddings, anniversaries or other such occasions. It is a proposal to drink in honor or to the health of a person or persons. Traditionally, they are brief (one gives the speech with a raised glass in one's hand) and humorous.

2.4   Academic talk

The point of academic talks is to inform an audience about a given research subject. It is designed to convey an overview of the main argument, so that the audience is better informed about the subject and can decide whether to read your paper or not. In a sense, it is an extended oral abstract of a paper or thesis. Nowadays, such talks also take the form of a software presentation.

2.5   Lecture

A lecture is a speech about a given subject for the purpose of instruction, for example, the novels of Jane Austen. Formerly, a professor would have delivered or even read the lecture while students were expected to take notes. Today, it is also more usual for a lecture to take the form of a PowerPoint presentation.

2.6   Sales pitch

A sales pitch is a presentation of a product or service designed to initiate and close a sale of the same product or service. An elevator pitch is a related term. It is a concise, carefully planned description of your business idea, company or product. A good elevator pitch is less than 60 seconds – the time you need to ride up an elevator.

Task 2.1:
In your culture are formal speeches supposed to be entertaining and contain humor or are they more solemn?

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Task 2.2:
Think of a brief toast that you could make on the following occasions: your mother's birthday, a good friend's wedding, or a colleague's promotion.

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Task 2.3:
What do a talk and a lecture have in common and how do they differ?

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3. AIMS OF A PRESENTATION

The very first step in preparing a talk or presentation of any kind is to think about what you want to achieve. Basically, we can differentiate between three distinct aims:
- sharing information, informing your audience about a certain topic
- convincing your audience of the soundness of your standpoint
- motivating your audience to undertake some action.

In reality, of course, these aims can be overlapping. You might, for example have been assigned the task of presenting your sales team with the results of last quarter's earnings. The essential purpose of your presentation is, therefore, to inform your colleagues about the sales statistics. Let's assume, though, that there was a slight, but noticeable, increase in sales after a new software application was installed on all the salespersons' laptops. You know that some of the older employees resisted using the new app and complained that it was too complicated. By pointing out the increase in sales you would also like to convince them that using the new software would be worthwhile and to motivate them to take action, i.e. to start using the new software.

Task 3.1:
What are the three different aims of a presentation?

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Task 3.2:
Can you think of another example in which such aims could overlap?

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4. AUDIENCE AS KEY FACTOR

Almost as important, and closely related to the aims of your presentation, are questions pertaining to your audience. It is absolutely essential to know who your audience is so that you can customize your presentation to their needs. Will you be speaking to experts or persons with little knowledge or experience of the topic? What are their expectations? What kind of questions might they ask?

Before turning to the multiple facets of factors pertaining to your listeners as such, a brief digression into the topic of meta-communication is called for.

4.1 What is meta-communication and why is it relevant for presentation?

Meta-communication, simply put, means that any form of communication is multi-layered and is more than just an exchange of information between sender and receiver. What one communicates to another person, in other words, does not depend just on what you say, the literal verbal meaning, but is also determined to a large degree on our voice, facial expression, gestures and other secondary signals.

In meta-communication a distinction is made between explicit – direct – and implicit – indirect messages and involves four aspects: They are the factual, the self-revelation, the relationship and the appellative level.

On a factual level the speaker imparts data, facts and information which the listener can accept as true, relevant and complete or not. This is presumably our main purpose in presenting a topic so making sure your facts are up-to-date, accurate and relevant for your audience is important.

On the self-revelation level the speaker, consciously or unconsciously, reveals things about him/herself to an audience. Consciously, for example, the speaker introduces him/herself: "*My name is Ms Ramirez*." By repeatedly clicking a pen on and off, though a speaker unconsciously reveals that he/she is nervous. Of course, almost everyone experiences a certain degree of stage fright when they have to speak in front of a larger or even smaller audience. The point is to be aware of this fact and reflect how one unconsciously might be projecting an undesired self-image.

The relationship level can also be made explicit with the use of you-statements or we-statements. More often, though, the relationship level is implicit and conveyed by means of body language.

The appellative level is perhaps of most interest for the purpose of presentations. A speaker, of course, can be explicit and tell the audience exactly what he/she wants: *Send me$20 today and save your soul!* More frequently, though, the appeal is indirect, subtle or even manipulative.

The illustration below depicts the four different aspects of communication.
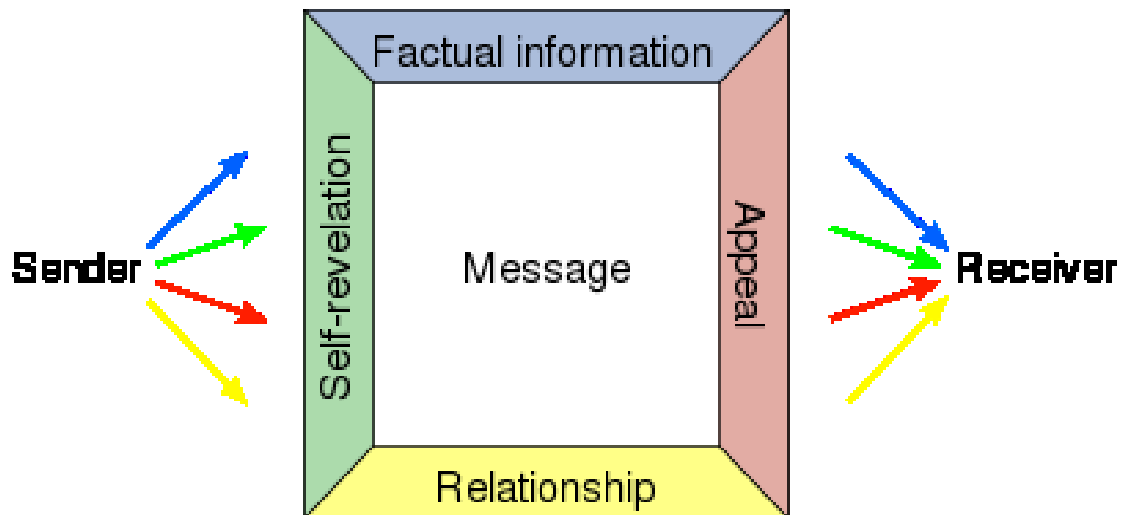
An example from everyday life demonstrates what meta-communication involves:

Husband to wife: "There is something green in my soup."
Wife to husband: "If you don't like my soup, cook yourself."

On the factual level, the husband is simply pointing out that there is something green in his soup and his wife that he can cook himself. Of course, that is obviously the least of the matter. On the self-revelation level, the husband is saying he doesn't know what the green thing is and that this irritates him. The wife reveals that she is aware that this makes him uncomfortable. On the relationship level, the husband indicates that the wife should know what it is and she feels that he is questioning the quality of her cooking. On the appellative level, the husband wants to be told what it is and that she shouldn't put things in his food that he doesn't know. The wife, in turns, demands that he accept what she cooks without questioning.

Task 4.1.1:
Define what is meant by meta-communication in your own words.

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Task 4.1.2:
What are the four aspects of communication and what is characteristic of them?

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Task 4.1.3:
Can you think of another example of a communication situation in which all four aspects occur?

_____
_____
_____

4.2 General factors for analyzing audiences

There are a number of factors to be taken into consideration when analyzing a potential audience.

4.2.1 Expectations

First and foremost, you have to consider what expectations your audience has. Are they expecting to receive detailed information or just an overview of a project? Do they want to be entertained or get right down to business? Are there any advantages or disadvantages they might encounter, or fear to encounter, should your proposals be adopted? An audience's expectations have a lot to do with the setting of the presentation and the cultural context in which it takes place. At a company meeting one would normally expect a presentation to be informative, though, that doesn't mean that it has to be boring. A speech in honor of a friend's jubilee should generally be entertaining and light-hearted, though, again in might also contain interesting information.

4.2.2 Heterogeneous audience

Important is also their level of expertise. How much, how little do they know about the subject in question? It would be a mistake to go over ground that the majority of your audience is already familiar with. It is just as bad, though, to overload them with terms and concepts they have no experience of. As in the case of teaching, the problem is often that you are faced with a fairly heterogeneous audience with some members having little or no experience of the matter at hand and others with a high level of proficiency. It is also not always possible to get a clear picture in advance about an audience's level of knowledge.

Two ways to deal with such dilemmas is to prepare alternative material in advance and to try to elicit feedback from your audience as you go along. For example, if your presentation requires the use of special terminology and you are not sure whether your audience knows them or not, you can make a slide with a list of key terms as a back-up and ask the audience whether they would like you to go over the terms or not.

4.2.3 Demographic factors

Demographic criteria have to do with the age, sex, nationality, professions, status etc. of your audience. In some cases such factors might not as important as in others. For example, if you are speaking at a town meeting you know there will be a mix of people of different ages, sex and socio-economic backgrounds and can keep your presentation open and general. If you are speaking in front of a women's association, a group of people near retirement age or a classroom of teenagers you might want to customize your presentation to fit the interests of these particular groups. Even if a presentation deals with the same topic, for example, explaining a point in English grammar, a teacher would need to approach the subject differently, depending on whether he/she is talking to a group of beginners, an advanced group of learners or a group of fellow English teachers.

Task 4.2:
What factors do you have to think about in terms of your audience?

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Task 4.2.1:
How might people's expectations regarding presentations differ?

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Task 4.2.2.1:
What is meant by a heterogeneous group?

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Task 4.2.2.2:
Is there a strategy for dealing with heterogeneous groups? Can you think of any other ideas?

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4.3   Intercultural aspects in respect to audiences

When giving presentations in an intercultural context - and this includes presentations in your home country at which foreigners are present – there are several points that need special consideration in terms of your audience. These include differences in style, body language, attitudes towards time, uncertainty avoidance and power distance.

4.3.1   Presentation

Despite our global economy, presentation styles still differ across cultures, even within the same international corporation. American presenters, for example, tend to place an emphasis on the overall picture and welcome interaction with the audience. This might appear superficial or not paying enough heed to the importance of being earnest for people from more rigid societies. Germans, on the other hand, don't feel they have done their homework unless their presentations are chock full of scrumptious details which might only elicit a yawn from their British business partners who favor a more self-deprecating style.

4.3.2   Body language and gestures

You should be aware that body language and gestures might have a different effect on your audience, depending on where they are from. While someone from Japan might find the gesticulations of an Italian exaggerated or even disconcerting, an Italian, in turn, might find the presentation of a Swede stiff. People oriented cultures generally appreciate getting more involved in the presentation and like to have pictures of people included.

4.3.3 Attitudes

Attitudes toward the relative importance of past, present and future also vary. Future oriented cultures, for example, Americans and Australians, tend to stress future benefits while people from cultures with a strong sense of history, such as India or China, might focus on past achievements. In terms of time management there are also wide gaps between cultures. If you call a meeting at four you can expect the Germans to come a few minutes in advance, ready to start business, the Americans and British to arrive at the appointed time but willing to chat and socialize while waiting for the South Americans to show up.

4.3.4 Interruptions

Speakers from countries with high uncertainty avoidance will generally not appreciate having their presentation interrupted. High uncertainty avoidance means feeling uncomfortable with the unexpected and wanting to know what is coming next. Germans, for example, much prefer to take questions afterwards. In contrast, someone from a culture with low uncertainty avoidance might even interpret no questions as a lack of interest in the presentation.

4.3.5 Cultural differences

High power distance cultures are cultures in which the person's standing in the hierarchy is more important than what he or she actually says or does. For the Chinese, for example, who attends a presentation might carry more weight than what they actually might have to say.

What to do? It's all fine and good to know that there are cultural differences in presentation styles, time management etc. but what are the consequences for me as a presenter? You need to try and find out as much as you can about your audience and the presentation style they feel most comfortable with. Naturally, you cannot completely throw over your own style of presentation but you can make an effort to adapt and take into consideration the tastes and expectations of people from cultures different from your own.

Task 4.3:
What are the five factors to take into consideration when giving presentations in an intercultural setting?

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_____

Task 4.3.1:
In terms of your own culture, do you feel more in step with the American or German style of presentation? Give reasons.

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Task 4.3.2:
How would you characterize your own culture in terms of body language?

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Task 4.3.3:
When would you come to the meeting at four?

_____

Task 4.3.4:
What is meant by high or low uncertainty avoidance?

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Task 4.3.5:
Would you characterize your culture as one of high or low power distance? What is meant by high or low power distance?

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5.   MEANS OR MEDIA OF PRESENTATIONS

Before we turn to the steps required for preparing and implementing a presentation, a short overview of the means at our disposal for giving shape to our presentations might be worthwhile. They are:

- the spoken word of the presenter, including his/her voice, which we will refer to in more detail at a later point.
- the lettering or fonts
- visuals (cliparts, photos, symbols, animations, film sequences etc)
- sound (mood music, background sounds, sound effects etc.)
- demonstration materials

Within the framework of this tutorial we will not be going into detail about the concrete steps required for importing pictures, sound elements or film clips into your presentation but only giving you some general guidelines. Online you will be able to find any number of useful tutorials for learning how to use PowerPoint or other presentation software.

Task 5:
What design options do we have in creating interesting presentations?

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6. PREPARING A PRESENTATION

6.1 Basically, there are some four steps involved in preparing a presentation

1. Make clear to yourself what the **purpose and intention** of your presentation is to be. Do you want to inform, convince or motivate? Hand in hand with this goes an analysis of your potential audience. Who am I speaking to? What do they expect, know, or hope?
2. Next point on the agenda is gathering your **facts and information**. Your data – whether as text or in graphical form or as sound elements – should be accurate and complete to portray you as a reliable source of information. At a later point in this tutorial we will be offering some suggestions for generating ideas.
3. Once you have all your data and visuals together, it is usually necessary to **comprise the material**. This often means leaving out material or points that you might find interesting. Finding the right balance is not always easy; too much information and you'll overwhelm your audience, too little will leave them feeling they haven't been adequately informed. The mistake most well intentioned presenters make is overkill, otherwise known as Death by PowerPoint. This means inflicting a never ending battery of slides jam packed with text and graphics on a defenseless audience. Comprising also refers to your text. Do not write out your presentation in full and simply read it out loud while clicking through your slides. You might think this is the safer bet and you will make fewer mistakes, but you will lose the attention of your audience. Use numbered prompt cards with key words or extra details if you are afraid of forgetting some important points.
4. Giving your presentation a **clear structure** is an absolute must. Your presentation should include an introduction with an overview, the main body and a summary. The general rule is to tell them what you're going to tell them (forecast), tell them, and then tell them what you told them (summary).

6.2 Key strategy for structuring

There are some **key strategies for structuring** any kind of presentation. They are linkage, briefing, overview, signposting and final summary.

1. **Linkage** means making connections or links to an area of knowledge or experience that is familiar to your audience or to something you said previously. This is important for anchoring new thoughts and concepts.

2. **Briefing** means letting your audience know what you expect of them. Should they take notes? Will they be given a handout?

3. **Overview** is extremely important as it lets your audience know which and how many points you will be covering in the presentation.

4. **Signposting** is for indicating where you are at any given point in the presentation. You use expressions like "My first point on the agenda is ….", "One more point ….", "To summarize ….."

5. **Final summary** even for short presentations a final summary is a real help for your audience as a last check to ensure that they have understood the main points.

6.3 Guidelines for designing your slides

1. First, you need to think about the **background**. Contrast and consistency are the two most important criteria, i.e. you should choose a background that is different from the fonts and stick to one background. A light text on a semi-dark background is better as the eye is attracted to light. Select a simple textured background to make your text easier to read.

2. The **bullet points** should be visible and placed along the left margin of the slide, one above the other to give a neat appearance and provide more room for the text.

3. **Graphics** should be placed off centre, generally on the left. They should match the message and not just be for decoration. Of course, if your graphic is a key diagram or important photo you might want to devote an entire slide to just presenting the visual. In that case you wouldn't include any text on the slide but only comment on it verbally.

4. **Capitalization** rules are important. Don't write everything in caps because such text is difficult to read and appears aggressive. Generally, we capitalize the first letter of the words of the title and the first letter of each bullet point and, of course, proper nouns such as the names of companies, places and people.

5. Choose your **fonts** carefully. They should be legible and large, at least 14 pts. It is also not a good idea to mix your fonts but to use only one, maximum two per presentation.

6. **Colors** should be used sparingly and consistently. For example, you might choose one color for the fonts of all your titles and a somewhat darker or lighter shade of the same color for the rest of your text. Avoid red as it is aggressive and difficult to read.

7. **Shorten your message**. Many people make the mistake of trying to cram too much text onto their slides. A good idea is to follow the **7 x 7 rule**: maximum of seven words per line and seven lines per slide.

Task 6.1.1:
What are the basic four steps for preparing a presentation?

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Task 6.1.2:
What is meant by comprising your presentation?

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Task 6.2:
Briefly outline the five key strategies for structuring a presentation.

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Task 6.3.1:
What should you consider when choosing a background for your presentation?

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_____

Task 6.3.2:
What is recommended for capitalization?

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_____

Task 6.3.3:
What is meant by the 7 x 7 rule?

_____

_____

7. IMPLEMENTING A PRESENTATION

Even the best prepared presentation will not be a success unless you take care to implement it properly. Five main points should be kept in mind for a successful presentation: preparation, rehearsal, voice and body language, rhetorical tactics and appearance.

7.1 Preparation

Enquire in advance about what **equipment** is available, if the beamer is compatible with Linux software etc. Make sure you arrive on time so that you can check out the equipment and that you know how to use it without any problems and that is set up and ready to run. How about the seating arrangement? Will everyone have a good view of the screen? If not, see if you can change the seats around.

7.2 Rehearse

As any successful speaker will tell you, **rehearsing** your presentation is absolutely necessary. Experts often recommend practicing out loud in front of a mirror, getting a friend of family member to listen to you or even videotaping your practice sessions. Remember to time yourself.

7.3 Voice

Our voice is the most powerful tool we have to make our presentation have an impact. Voice reveals more about who we are than the words we speak. Also important to remember is that the spaces between the words are as important as the words themselves. Factors which are relevant in connection with your voice are articulation, chunking, stress, pacing, intonation, and volume.

7.3.1   Articulation

Make sure you know how to say any long or technical words you may need. It is particularly important in English to know which part of the word has the strongest stress. Stressing a word wrong makes it more difficult to understand than bad pronunciation.

There are some simple rules for stress in English. First, only one stress per word and secondly, only vowels, not consonants are stressed. Most two-syllable nouns and adjectives have a stress on the first syllable. Examples are PRESent, CLEver. In contrast, most two-syllable verbs stress the second syllable, e.g. to preSENT. In compound words the stress is always on the first word, for example, BLACKboard.

7.3.2   Chunking

To give effective presentations in English you must learn to speak in complete phrases and not just individual words. Pausing for effect in the right places can be a powerful technique. How to know, though, when to pause?

1. Pause briefly at the end of a chunk
2. Stress certain words (below in bold), usually the word at the end of each chunk
3. Don't stress unimportant words like *to, at, a*, and *the*.

Example: We would **like** you
                to **look** at this line **graph**
                which clearly **indicates**
                the rising volume of **sales**
                of our new tablet **computer**
                in South-East **Asia**.

7.3.3   Stress

As a rule, in English the stress tends to come at the end of each chunk. By deliberately placing the stress at the beginning or in the middle of a chunk, though, you can change the meaning of what you say.

Example: MY SISTER would never dance with him.
                My sister would NEVER dance with him.
                My sister would never DANCE with him.
                My sister would never dance with HIM.

7.3.4   Pacing

Perhaps the most common mistake many inexperienced presenters make is to speak far too quickly. A simple way to keep an audience's interest is to vary the speed of your speaking, slowing down to emphasize important points.

7.3.5   Intonation

You can give your presentations real power by making full use of the rise and fall of your voice, or your intonation. A dramatic rise in your voice creates anticipation, while a sharp fell gives weight and finality to what you have just said. Keeping your voice up means you are in the middle of saying something and shouldn't be interrupted. When you are done your voice drops. Monotonous speakers who always speak at the same pitch put their audience to sleep so be sure to vary the tone of your voice.

7.3.6   Volume

Make sure you speak loud enough so that everyone in the audience can hear you. The most interesting facts, fascinating visuals and careful preparation won't count for much if you speak so softly that anyone sitting two rows back can't understand you. If you know you have to speak in front of a very large audience enquire if there is a sound system in place and whether you can do some trial runs.

7.4   Body language

What is body language and why is it useful for presentations? Body language encompasses eye contact, facial expressions, posture, movements and gestures. It is a natural part of communication and your single most important visual. Used effectively, positive body language can help you maintain interest and clarify points in your presentation. You don't have to whirl your arms like a windmill or pound the podium with your fist; the golden rule is to be natural and relaxed.

Eye contact is important to keep the audience's attention and to let you read their reactions. For example, if you see a number of people looking puzzled you can backtrack and rephrase what you just said.

Your facial expressions should be natural and friendly and match what you are saying; smile when introducing yourself, raise your eyebrows to show surprise, frown if you are giving bad news etc. Use your hands to emphasize important points and to enumerate items, for example, by raising your hand and holding up your fingers one after the other, staring with your thumb, to count off items. Arm movements back and forth suggest flow and open arms are used to include ideas.

7.5   Rhetorical tactics

There are any number of useful rhetorical tactics but we will describe the following four: Repetition, rhetorical questions, dramatic contrast and tripling.

7.5.1   Repetition

Repetition is one of the presenter's most powerful techniques. In the following examples, look at the kind of words which are most effective when repeated:
He is **far, far** older than I expected.   Sales have been **much, much better**.

A simple repetition of key points is also effective. A common technique is:

Statement ⟶ Repetition ⟶ Explanation

Example:
We need to act now … We need to act now - otherwise we will be too late.
Selecting a key word and repeating it is also an effective tactic.

Example:
Nobody leaves the room. **NOBODY.**

7.5.2 Rhetorical questions

It is often more interesting to present your ideas as questions because they involve your audience. They also make your presentations more conversational in tone and get your audience to anticipate what you are going to say next.

Examples: So, what did we do next?   Where did we then end up?

7.5.3 Dramatic contrasts

Dramatic contrasts are a good technique to reinforce the point you want to make. It sounds like a cliché, but people tend to think in black or white, good and bad, i.e. in simple opposites. Making your point with two opposing ideas grabs the attention of your audience. It is not by chance that so many famous quotes involve dramatic contrasts.

Example: Ask not what your country can do **for you** but what **you can do** for your country (JFK).

7.5.4 Tripling

For some reason people derive a sense of completeness when things are grouped in threes, particularly if alliteration (the first letter of each word is the same) also comes into play. This goes for individual words as well as phrases and verbs.

Examples:
She's **s**ixteen, **s**weet, and **s**exy.
Tell me and I **forget**;
Show me and I **remember**;
Involve me and I **understand.** (ancient Chinese proverb)

Task 7.1:
What options do you have for practicing your presentation?
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_____

Task 7.2:
What are the six factors to consider regarding voice?

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_____

Task 7.3:
Name three examples – from the text and your own ideas – of how to make effective use of body language.

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Task 7.4:
Briefly outline four rhetorical tactics. Can you think of any others?

_____

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8.   PHASES AND LANGUAGE

In the following we would like to offer a small sample of appropriate phrases and language you can use for the different key phases of your presentation: the introduction, the body and the closing

Introduction

Greeting - formal	Good morning, ladies and gentlemen
Greeting - informal	Ok, let's get started, shall we?
Introduction - formal	My name is …
Introduction - informal	I'm …/I think most of you know me, 'I'm …
Subject of the talk	The topic of today's presentation is ..
Objective	My main objective .. What I want to do today is ..
Structure	I've divided the presentation into …
Main points	Firstly, I'll talk about … Secondly, … Thirdly, ..
Timing	The presentation will take about …
Questions	If you have any questions, please feel free to interrupt me. I'd prefer to take them at the end

Body

Opening a new section	Let me now move on to …
Digressing	If I could just digress for a moment.
Inviting questions	Are there any questions on that?
Ending a section	That's all I have to say about that.

Closing

Signaling the end	Ok, that pretty much brings me to the end of the presentation
Summarizing	I'd like to summarize the key points.
	In summary …
Opening the discussion	Any questions?
	I'd now like to open the discussion round.
Closing	Ok, let's finish here.
Thanking	Thank you all for your time and attention.

Task 8.1:
What are the three main phases of a presentation?

_____

_____

Task 8.2:
Give an example for a formal versus an informal expression.

_____

_____

9.   USING VISUALS IN PRESENTATIONS

9.1.   Visuals for better retention

People take in a great deal of their information input through their eyes, that is to say they perceive to a large degree visually. It stands to reason, therefore, to include optical channels of perception when giving presentations.

If we do not just express our ideas verbally, but also make them visible, we are much more apt to grab and keep the attention of our listeners.

As the following diagram illustrates, people retain a great deal more when they can simultaneously listen and see, rather than when they just listen. This is an important point to note for any presenter.

Depiction of retention in percentages

Listening 20%
Seeing 30%
Listening and seeing 50%
Discussion 70%
Action 90%
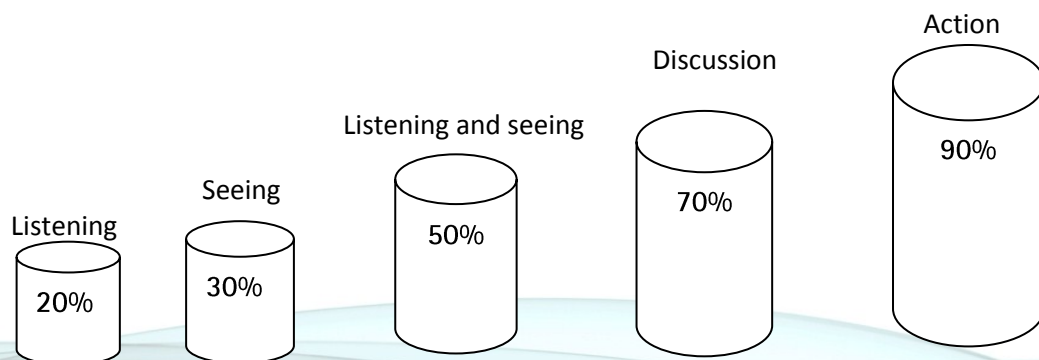
9.2 Further advantages of visuals

In keeping with the motto "A picture is worth a thousand words", visual aids can thus be very instrumental when giving a talk. In addition, a presentation which is enriched with charts and diagrams is much more lively and diversified and leaves behind a more lasting impression than a plain talk of just spoken words. Certainly, most of us have often experienced this pheromone ourselves.

Visuals offer the following advantages:
- Increase the power to convince
- Arouse interest
- Offer an overview and orientation
- Make it easier to absorb information
- Make the context and interrelationships clearer
- Illustrate facts
- Make it easier to retain presented matter

9.3 Guidelines for selecting visuals

Nonetheless, visual elements – whether we are talking about cliparts, photos, diagrams, or film clips - have to be very carefully and suitably chosen. False or superfluous visual materials can have a detrimental impact on the effectiveness of talk. Weighing the pros and cons, we can formulate the following guidelines when dealing with visual aids:

1. Visual aids should only be implemented when they support the spoken word.
2. They have to demonstrate at the right point in time what is being said in the talk.
3. They cannot replace but only enrich a talk.
4. Care should be taken not to cram your presentation with too many visuals.
5. Using visual aids required through preparation.

Task 9.1:
What is the main reason for including visuals in your presentation?

_____

_____

Task 9.2:
What other advantages do visuals offer?

_____

_____

Task 9.3:
What do you have to consider when selecting and implementing visuals?

_____

_____
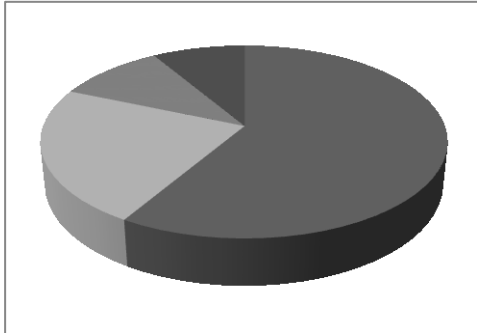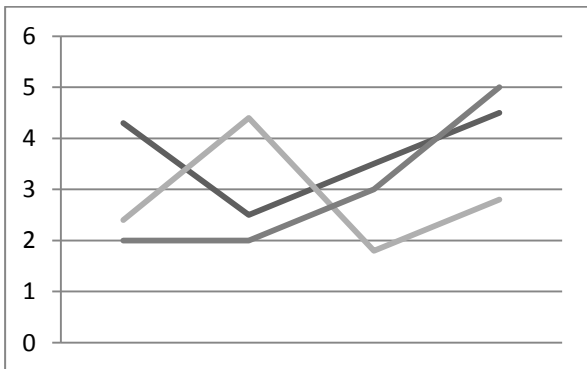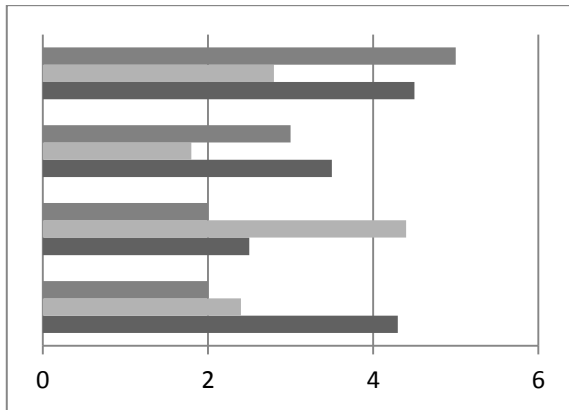
10. DIAGRAMS

10.1 Types of diagrams

Various forms of diagrams and graphs are used to depict information.

Twin cities	Airport	Art gallery	underground
Regensburg			
Odessa			
Aberdeen			
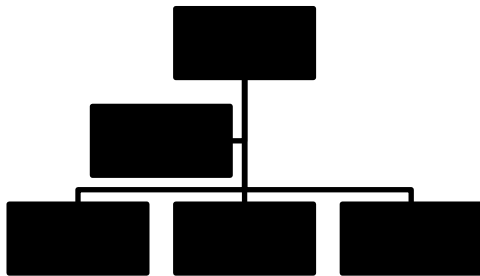
Task 10.1:
Use the following terms to label the diagrams above:

bar chart	line graph	pie chart	grid	organigram

Task 10.1.1:
Match the diagram to their definitions below.

……………………. A development over time is represented by lines, especially suitable for fluctuations in totals or percentages.

……………………. Items and their corresponding characteristics are presented vertically and horizontally.

……………………. Totals are displayed as vertical or horizontal blocks, especially suitable for comparisons.

……………………. The structure of a hierarchy or organization is illustrated.

……………………. A total is divided into segments of a round disc, used to show percentages of a whole.

Task 10.1.2:
Draw a line graph according to the following description.
Annual sales

The volume of sales during the first half of the year was a series of ups and downs. Less than 6% of the market share in early January, they rose sharply to almost 9% in less than two months, only to drop sharply below the 6% level towards the end of March. A more gradual rise then took them up to their peak of just under 10% by late June. A slight dip and then a sharper drop led to a rate of 7% by late summer. The trend continued in the early fall with sales reaching their lowest point in October at just over 5%. November saw a renewed climb to more than 7% by the end of the month, but then they dipped back to achieve their former share of 6%.

11. METHODS FOR COLLECTING IDEAS

After all is said and done, the bottom line when it comes to giving a presentation is that you should have something to say that your audience doesn't know yet. It should be something new and interesting. But how to come up with new ideas? In the following four methods for generating ideas will be introduced: The Crawford slip, brainstorming, mind-mapping and discussion 66. Though conceived as group activities some of these methods can also be used individually.

11.1 Crawford slip method

The Crawford slip method is as effective as it is simple and easy to organize. It is used to gather ideas from a larger group of people within a limited time frame. It can also be used to give an audience a sense of involvement. The procedure is to hand out slips of blank paper or cards to groups of participants. The groups should discuss their ideas and write down anything they think of on one of the slips of papers. The rule is one idea per slip. Afterwards, the slips can be posted on a pin board and briefly presented or rounded up, collocated and sent to all the participants as a collective email.

11.2 Brainstorming

Brainstorming is a tried and true method for generating ideas, usually in groups but it can also be used by individuals. Ideas, answers to questions or solutions to problems are pooled and compiled into a list. The focus is on quantity and no criticism – *"That's a ridiculous idea!"* – is allowed. Unusual, even, outlandish ideas are welcome. In the next step, a closer look is made of the list and ideas are combined and improved.

11.3 Mind mapping

Mind-mapping uses a diagram to visualize information, often centered round a single word or text at the center of the map. Associated words or ideas are added. Major categories radiate from the center point to which sub-branches can be added. It is a good method to elicit ideas or vocabulary from a group of students or to classify ideas or plan steps.

11.4 Discussion 66

Discussion 66 refers to a type of buzz session as part of a larger presentation and is a variation of brainstorming. After a lecture or at same point during the lecture, the presenter will ask the participants to spontaneously form groups of 6 and discuss for 6 minutes – thus the term 66 – a given question.

Task 11:
Briefly outline the four different methods for generating ideas. Which type of method do you think you would prefer and why?

_____

_____

_____

12.   USEFUL SYMBOLS

What is a symbol? It is something that represents something else by association. Symbols can be very powerful tools for making your presentation more effective by speaking to the right-hand, imaginative, side of your brain. They are especially useful in conveying complex technical information in that they make certain concepts instantly understandable. Symbols can also act as bridges and grab the attention of your audience. They appeal to both sides of the brain so that people can remember things better. The genius of many simple symbols are that they are instantly recognizable, generally easy to draw and almost always universal. One can use them in PowerPoint presentations just as readily on white boards or flip-charts. Below a sampling of some widespread symbols:

decrease	increase	smiley	love	equals

@	$	?	+	-	X
email	money	question	plus	minus	multiplied by

forefinger	direction sign	arrow
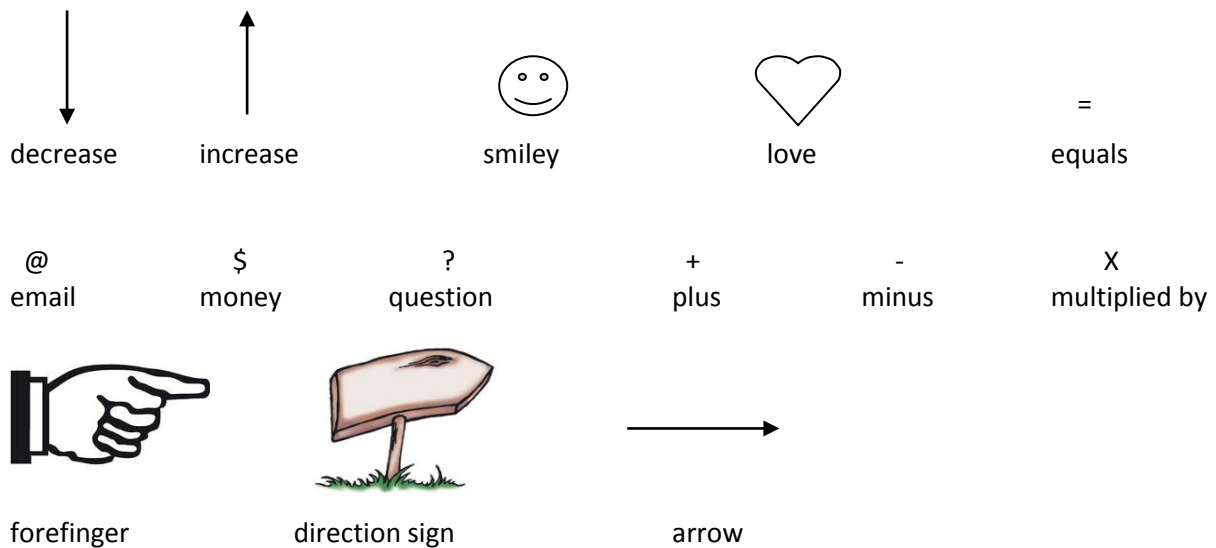
Task 12.1:
Why are symbols so powerful?

_____
_____

Task 12.2:
Can you think of any other symbols that are universal? Are there any symbols which are particular to your culture?

_____
_____

13.   ALTERNATIVE MODES OF PRESENTATION

The versatility and sheer endless options available for software presentations begs the question of why to even bother about other modes of presentation. Firstly, it is never a bad idea to have a back-up in case of some kind of technical hitch and secondly, other more traditional modes of presentation such as overhead projectors, flip-chart s and whiteboards or blackboards can be used spontaneously.

Flipcharts are especially flexible since they don't need any electricity and can be set up in a matter of seconds just about anywhere.

Task 13:
If I don't have access to a beamer and laptop what other modes of presentation are available?

_____

_____

14.   EVALUATION

The following checklist can be used to evaluate your presentations.

Preparation	Evidence of careful preparation	10 9 8 7 6 5 4 3 2 1
Structure	Well organized with a clear structure	10 9 8 7 6 5 4 3 2 1
Content	Relevant, valid facts and figures	10 9 8 7 6 5 4 3 2 1
Visuals	Suitable, appealing, communicative	10 9 8 7 6 5 4 3 2 1
Delivery	Voice, speed, body language, rapport	10 9 8 7 6 5 4 3 2 1
Language	Range of vocabulary, rhetorical tactics	10 9 8 7 6 5 4 3 2 1

15. PLANNING TECHNIQUES, METHODS OF ANALYSIS AND OPPORTUNITIES OF APPLICATION

15.1 Planning Techniques and Methods of Analysis

15.1.1 Planning Techniques of the operational process

All types of operational processes such as the production of material goods and services, and the associated administrative tasks need time and results in high costs. Every company is therefore, interested to take into account the economic principle of task management. In relation to operational processes, the economic principle means two things:

1. Reduction of lead time, which means that the activities should be done in the shortest possible time.

2. Maximizing time capacity, this means that the available equipment should be used as much as possible.

The two formulations of economic principle are included in these two descriptions.

To realize the listed objectives, one uses a wide range of methods and techniques. These you will get to know in the next section of the bar chart (also called time bar chart or Gantt chart) the network and the ABC analysis and value analysis.

15.1.2 The bar chart - a means of time-oriented process organization

Minimizing lead times and maximizing capacity utilization is a recurring problem in business practice. These problems are not only limited to the technical and manufacturing sector but also applies to the business sector.
In particular, in the field of production capacity utilization is relatively often a problem because each individual order binds or occupies the available machines in different ways. In order to resolve this problem, please refer to the bar chart.

The bar chart is a means of time based workflow management and allows optimal utilization of available machine capacity. There are also application possibilities for personnel planning and when planning the use of advertising media, etc.

In the basic layout of a bar chart, time is observed in the horizontal plane and production factor in the vertical.
The structure and the creation of a bar chart can be seen in the following example.
Situation:

A company has two different contracts for the automotive industry. Three different machines are needed for production. The engine layout is different for the two orders because of technical differences. Time needed per machine is also different.

The exact data can be obtained from the following list:

Order A	Machine 1	Machine 2	Machine 3
	2 hrs.	4 hrs.	3 hrs.
Order B	Machine 3	Machine 1	Machine 2
	3 hrs.	2 hrs.	3hrs.

Let us first look at order A.

Because order A requires 2 hours on the machine, this time must be entered as an operation into the coordinate system. The operation will be drawn as bars in the coordinate system.

The order requires 4 hours on machine 2 and 3 hours on machine 3. These operations must also be entered in the coordinate system and you will note that order A can be done in 9 hours.

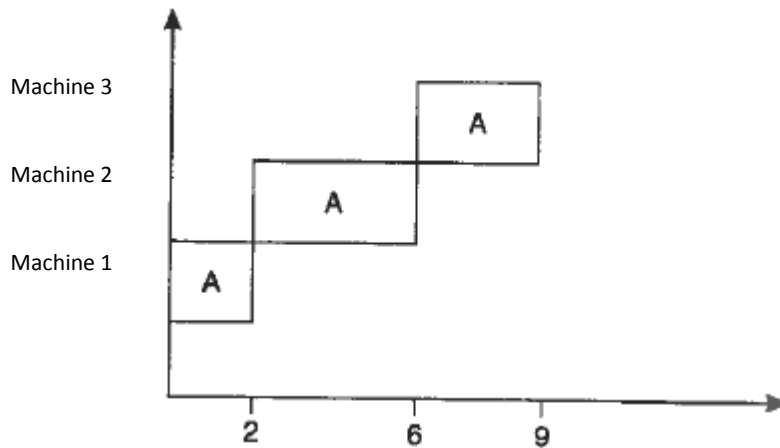The representation of machine usage plan for order A has the following appearance:

Figure 15.1: Bar Chart 1

If the order is additionally marked B in the diagram, we get the following results:
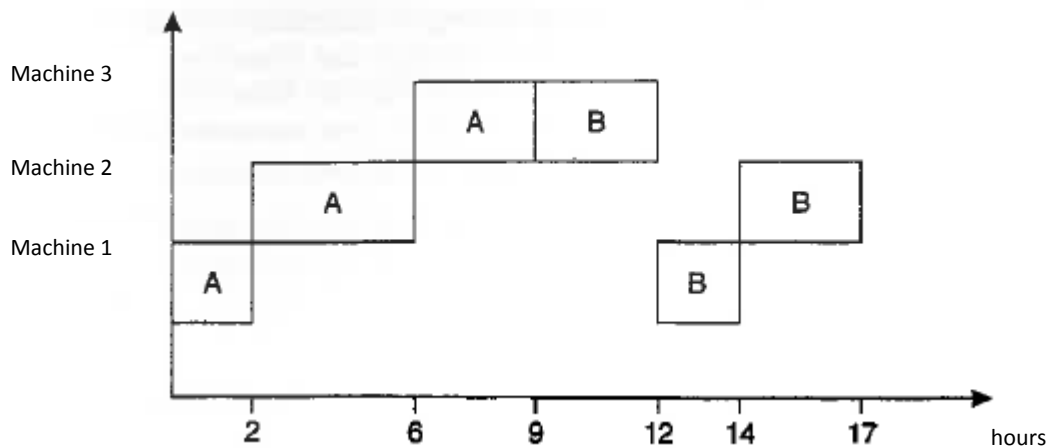

Figure 15.2: Bar Chart 2

If you look at this presentation, it is clear that the two orders can be completed in 17 hours. This relatively long period of time is due to two reasons:

1. by the technically necessary sequence of machine availability
2. by the relatively large periods of time in which the individual machines are not occupied.

The technically necessary sequence of machine availability can not be changed. However, opportunities must be looked for to reduce the times where the machines are not used, that means, the downtimes and the break times of the machine must be reduced. At the same time the usage times of the machines must be increased, that means, better utilization of time capacity.

Taking into account the minimum principle, the problem can be described as follows:

The cycle time for both orders (= use of the three machines) should b utilization e minimized as this allows the machines to be free again as quickly as possible for other jobs. A prerequisite for this of course, is that they can be operated at the same time.

The following diagram shows one way to improve the machines utilization times.
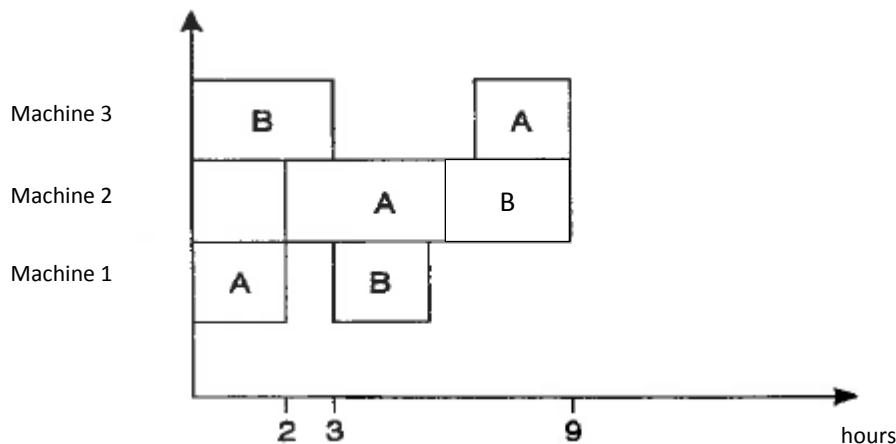
Figure 15.3: bar chart 3

It is not always easy to achieve an optimal solution as in this case. In particular, if there is a large number of orders and machines needed, then you must try several times to reach a solution. There is no **ONE** standard solution which leads to the optimum result. In most cases it is trial by error until you reach the perfect solution.

The bar graph can show in addition to the representation of usage and idle times, whether a machine can accomplish- the task within a certain time or whether it is overloaded.

Another advantage of bar graphs is its versatile usability as already mentioned above.

In terms of production, manufacturing processes, order processing, building plans, etc. can be represented. In the field of personnel planning, personnel assignments and tasks for groups, breaks, and vacation planning can be determined. The bar chart can be used to optimize space allocation times and the use by certain advertising media.

The application of time bar-charts should only be made for smaller projects, because the relationships between the individual operations can only be shown to a very limited extent.

15.1.3 Network planning

15.1.3.1 Fields of application of the network planning

Network planning according to DIN 69900 is understood to include all procedures for analysis, description, planning, control and monitoring of workflow processes with:

- Time,
- Costs,
- Resources
- and other factors

taken into consideration.
Main application of network techniques are usually projects, as they are time oriented.

It should be understood that there are several companies and operating areas involved in the planning and control of large, unique and complex **projects.**

Projects and project sections must be clearly defined from the beginning to the end.

In this respect:

- Research and development projects,
- Construction projects,
- Introduction of new products, services, etc.
- Maintenance and repair measures,
- Introduction of new systems etc.

can be described as projects.
The main task in the implementation of a project is to ensure that schedules are observed and if the network analysis can be perceived in a clear and methodically simple way.

In addition to the network planning or subsequently (parallel or successive planning) a capacity or financial planning can be done, so that in an ideal case, cost control as well as schedule control is possible.

By using the network planning method you are forced to exactly think through the entire project process from the outset which provides the possibility of a holistic view of time, cost and use of resources.

Using the network planning method offers the following advantages and possibilities:
Description of the project
- Systematic thinking through a project
- Overview of the structure of a project
- Identify all project deadlines
- Planning the use of manpower, additional resources and funding
- Coordination of all parties involved in the project, immediate identification of critical points in the project
- Identification of available reserves in the project cycle
- Facilitate the project planning, monitoring, and management and control

15.1.4   Development of Network Planning Method

Disadvantages of time bar-charts are for example:

- sequence and timing happen simultaneously,
- there is little information with regard to the sequence of events, as well as the links of the operations,
- there is no information as to whether a date may be postponed.

Furthermore:
- increases in the number of large scale and high complexity projects and the
- development of high-performance computer systems with increasing improvement of value for money

Has led to a change in the planning and control methods.
In the US and France, three different groups of network planning methods have been developed independently from each other but about the same time.

CPM = Critical Path Method
This method was developed in the United States for the planning of maintenance and conversion work in the chemical industry. Practical experience has shown that CPM can most appropriately be applied for planning processes, where the time limits for each task is basically normalized (uniformly set) and known.

PERT = Program Evaluation Review Technique
This procedure was developed by the United States Navy in collaboration with private companies for the construction of the Polaris missiles. The work of 11000 contractors was coordinated. The time saving was approximately 2 years.
No precise data exists for the system of PERT. This is determined on the basis of time estimates using mathematical methods. PERT is therefore, mainly used in research, development and design (project planning).

MPM = Metra Potential Method
Originally developed by nuclear power plants and later taken over by a group of consulting firms. The MPM method takes into account the intricate complexities of each operation.
A comparison of the method, CPM, PERT and MPM shows a clear superiority of MPM compared to the two other methods. The still slightly existing weaknesses of the MPM no longer occur in the process node method developed from the MPM (VKM). In particular, complicated process structures (such as temporal overlap) are simple to represent. Any necessary adjustments in the flow structure/schedule can be easily made.

Many software houses offer standard programs for network creation. Because these programs are focused on the operation node method, only the design of node network process (VKN) is shown in detail.

15.1.4.1 Concepts

Operation and Events

Each project consists of a wide range of activities, which should also be described as operations. A specific amount of time is required to complete these procedures. According to DIN 69900 a process is defined as "time demanding events with a defined beginning and end".

Tasks in a workflow can be:

- Tests
- Developments
- Training
- Installation etc.

In addition, not only are operations for the description of a project of interest, but sometimes specific start and end dates or certain activities are also interesting.

The time-related elements are called events.

These are explained according to DIN 69900 as "the occurrence of a defined condition in the flow". Events in a workflow can be:

- Commissioning
- Release date
- Date of transfer
- Finish date, etc.

Dependencies and relationships

Not all activities can be done at the same time in a project. There are both technical and organizational restrictions. So for example, the test of a DV program can only be performed, when the program is written.

When there is a dependency between two successive operations, the two cases must be distinguished as follows:

- the logical structural dependency and
- time structural dependency.

The first case is only interested in the indication of which tasks or events are directly linked. If only the representation of these dependencies is required, then the representation by means of a flowchart, for example, would be sufficient. However, in order to determine the duration of the project, time/temporal dependencies must also be given.

Three types can be seen below:
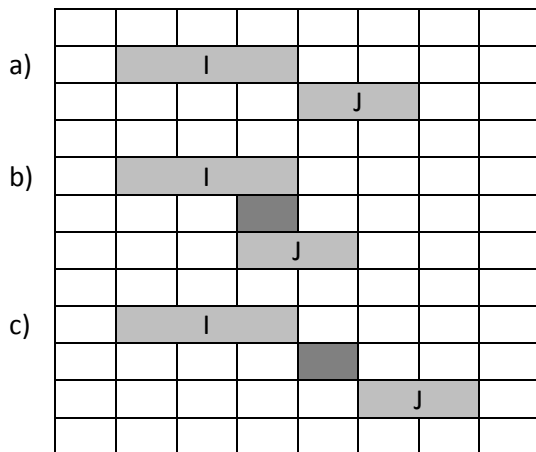
Figure 15.4: Temporal consequences
a. direct result
b. overlapping (partly parallel activity)
c. results with waiting period

Example 1:

Development of a DV program

■ **Direct result**
In this case, the program would be tested immediately after the end of programming. "The end of the programming" is at the same time "Start of the test"

■ **Results with waiting period**
As a result of the heavy load of the DV system, it can only be tested 2 days after completion; Thus, a waiting period of 2 days is necessary.

■ **Overlapping**
While sub- programs are still being developed by the programmer, the main program can be tested. The overlap is the common time of testing and the development of the sub-program.

The temporal dependency between two tasks **I** and **J** can easily be represented by four different linkages. The link can be done by specifying either the beginning and/or end of the operations.

The most important, i.e. the most commonly temporal dependency used in business practice is the normal sequence of NF (I, J). This NF links the end of the process I with the beginning of the subsequent process J.
In this case the following applies:

■ the direct result: NF (I, J) = 0
■ results with waiting period: NF (I, J) > 0
■ Overlapping: NF (I, J) < 0

Example 2:

Building of the walls can only be done 1 week after the casting of the base, at the earliest.
In this case, the minimum time interval in normal sequence is specified, as 1 week = NF MINZ.

| Casting | NF MIM Z = 1 week | Building |

> Minimum intervals (MIN Z) represent the lowest limit that should not be exceeded i.e. the directly following operation must not be done earlier. This is the rule. The MIN Z is shown by the connecting arrow.

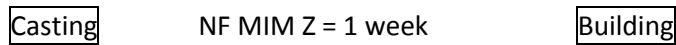If the time intervals are specified in NF, then the NF is not required for reasons of simplification.

Sometimes a problem arises, for example, in a sequence of two operations a later date or a maximum permissible period is limited. So a newly cast floor can still be smoothed within a period of 8 hours depending on the mixture and weather. Such a relationship is called maximum time interval

> The maximum time interval in two successive operations is the maximum amount of time allowed to elapse between the start or end times of the two operations.

In addition, we will only look at the MINZ since the calculation of a network with MAXZ is rather complicated.

Process Node Network

In a process node network (PNN / VKN) the operations are represented by boxes and their dependencies between them by task dependencies (AOB) (arrows) with additional time.

VKN
process = nodes
AOB = arrows
events unfold

AOB

Process   Process
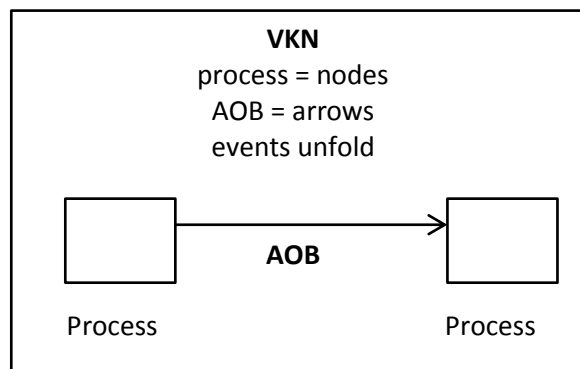
Figure 15.5: Task Dependencies

It is important to ensure that no loops (cycles) arise when setting up a network because a node would pass through several times and a unique time period in this case, would no longer be possible. The appearance of a process node depends on the information to be accommodated. The following defined and used representation of a node (Fig.4.19.) can be regarded as a representation of a standard node with sufficient information content

However, different design process nodes are used in practice. There is no standardization.

Serial article number		
Process		
FAZ	D	FEZ
SAZ	GP	SEZ

FAZ = earliest start time

FEZ = earliest end-time

SAZ = latest start time

SEZ = latest end-time

D = duration of the process

GP = total buffer

Figure 15.6: Operation Node

The various terms are explained below:

15.1.4.2 Structural plan

If a house is built, it is not only important to know in what order each task is carried out, but also, in particular, how long they will take. Only then can appointments with the individual craftsmen, be made. It is also then possible to calculate when the house would to be ready for occupancy.

However, before the duration time is calculated, the schedule must be determined.

Generally, the order of the individual activities for a project, i.e. the workflow, is fixed or planned.

The structure can be represented in a tabular or graphical form in a project structure plan.

Tabular Structural Plan

In the tabular structural plan, linking a considered process with its immediate predecessor or immediate successor is carried out. This is only to provide of the logical link. Consideration of the temporal link is carried out in the other sections.
The tabular structure plan should be created for the following example:

Example 3:

After planning, the machines are ordered, the construction site is established and the building materials delivered. The planning phase takes 8 time units (TU), ordering of the machines 5 TU, establishing the construction site 4 TU and 6 TU for delivery of the building materials. After the machines have been ordered, it takes 15 TU, until the machines are delivered. Once the construction site is set up and the building materials delivered, it takes 2 TU to lay the machine foundations and 13 TU to create the walls and ceilings.

After ceilings and walls are created, the windows and doors are installed which takes 6 TU. The plastering and painting, takes 5 TU.

Once the machines are delivered, the machine foundations are laid, windows and doors are installed and the plastering and painting completed. The machines are assembled and put into operation which takes 8 TU.

Solution:

Table 15.1: Structural Table

I.D No.	Process	Duration (TU)	Immediate Predecessor
1	Planning	8	-
2	Order machines	5	1
3	Construction site	4	1
4	Building materials	6	1
5	Delivery of machines	15	2
6	Foundations	2	3, 4
7	Walls, ceilings	13	3, 4
8	Windows, doors	6	7
9	Plaster, painting	5	7
10	Assembly	8	5, 6, 8, 9

Graphical Structural Plan

The graphical structure plan is a graphic representation of the operation of each node using linking arrows, as shown in Figure 4.20. For the sake of clarity, only two directly related nodes are linked by an arrow.

Example 4:

For the project construction of a new factory building, a graphical structural plan should be created.

Solution:
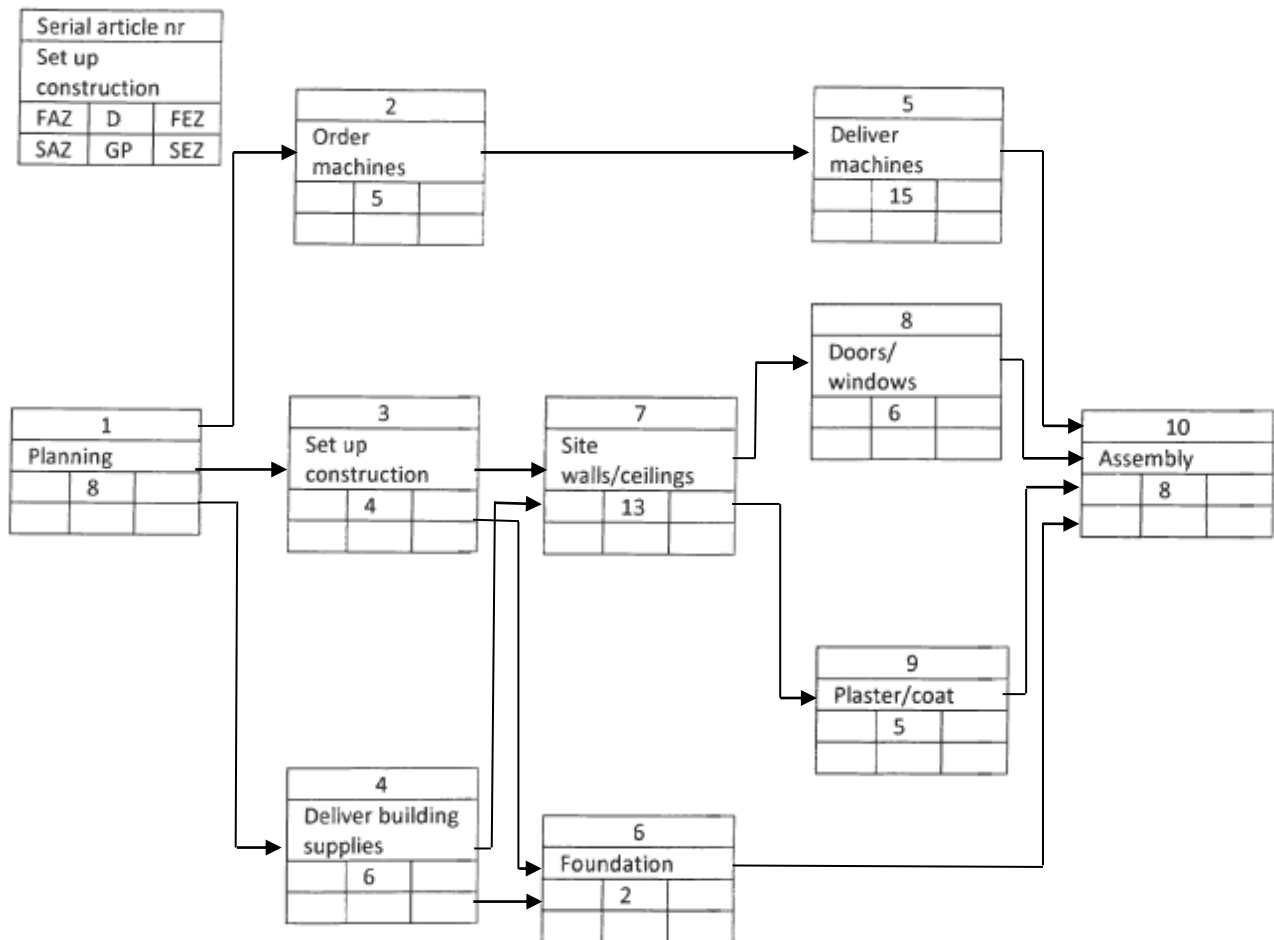
Figure 15.7: Graphical Breakdown

15.1.4.3 Scheduling

After the schedule was shown in graphical form, the calculation (scheduling) can be carried out and the process node network can be established.

The establishment of a process node network plan is composed of the following steps:

- Determining or setting the duration of the tasks and task dependencies
- Determine the earliest times of the operations (start and end times) in forward calculations
- Identification of the latest times of the operations (start and end times) in reverse calculation
- Determining other values (such as the buffer time/floats and the critical path)

This procedure indicates that two things must be known before scheduling:

- the duration of each task and
- the time intervals between two consecutive tasks

In the example given, the details of the task's duration from the task description in the structure table and the breakdown were included.

In this example, we want to see that every process can immediately follow its predecessor. In this case the standard NF between all tasks is zero.

After the duration of each task is known, the network can be scheduled in two successive steps:

- **Forward Scheduling**
  The earliest possible times (FZ) of each operation are calculated from the start towards the target node.
- **Backward Scheduling**
  The latest possible times (SZ) are calculated from the target towards the starting node.

If the earliest and latest times of a task are the same, this process is then critical; this means that a temporal shift of this process would move the calculated finish date to the same time. However, the earliest and latest time of a task, shows a difference, which means that this process can be moved around the time difference without the completion date being at risk.

Forward Calculations
To calculate the earliest times the following relations apply (process I is the first task and task J its immediate successor):

Earliest end-point of I.

(1) $FEZ(I) = FAZ(I) + D(I)$

Earliest start time of J.

(2) $FAZ(J) = FEZ(I)$

A process has more than one immediate predecessor, so more arrows lead to a node. Then there are potentially different values for the earliest start times and end time of this process. In this case, the largest of the calculated values is always the earliest time.

(3) $FAZ(J) = MAX$ ......$\begin{cases} FEZ(I) \\ FEZ(H) \\ \\ ...... \\ ..... \end{cases}$

Example 5:

Calculate the earliest times for the example machine installation. The earliest starting point of the process I is set at 0.

FAZ (I) = 0.

Solution:
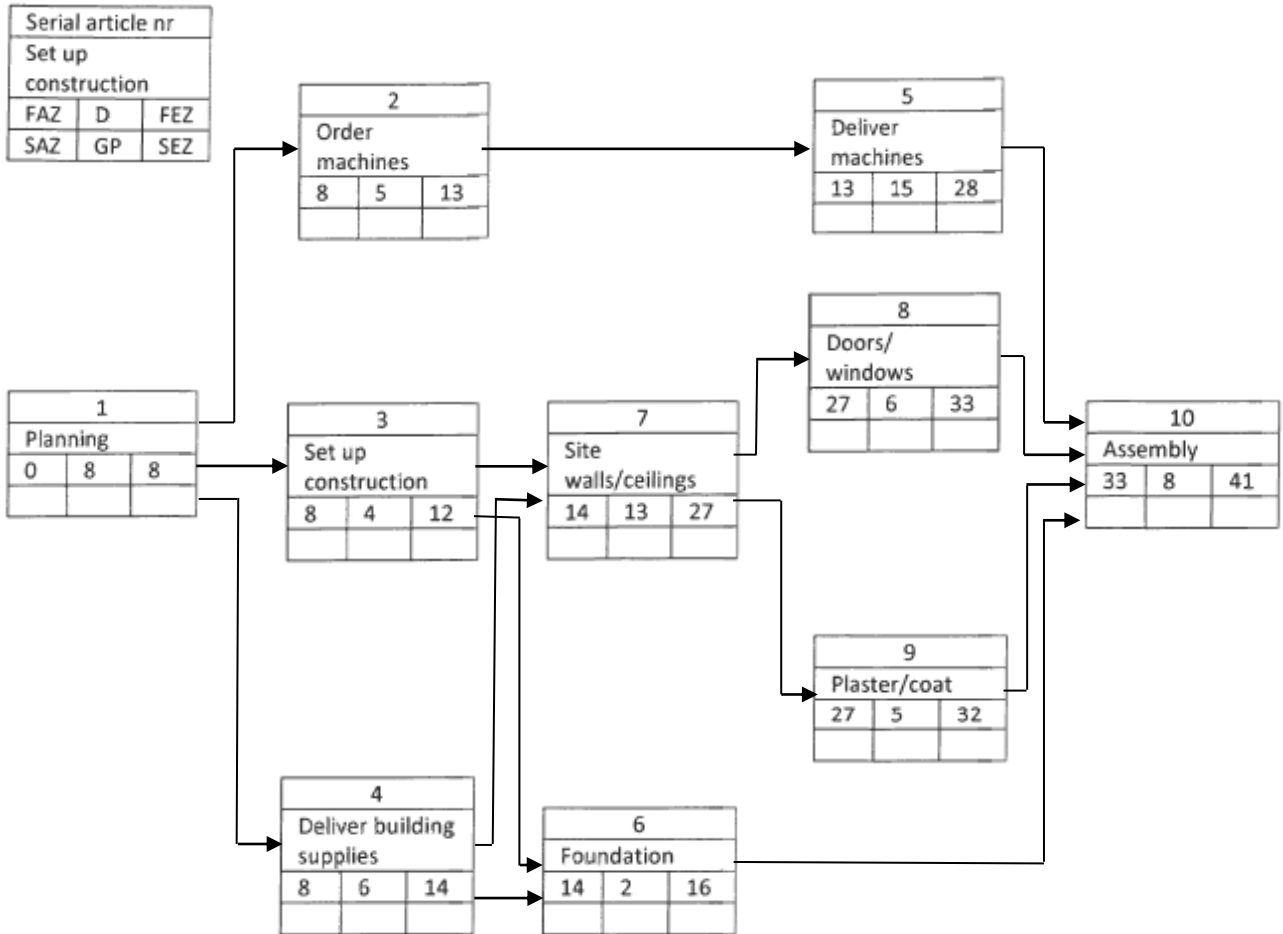
Figure 15.8: Calculation of the Earliest Times

Backward Scheduling

To calculate the latest times the following relations apply:

(4) SAZ (J) = SEZ (J) - D (J)
(5) SEZ (I) = SAZ (J)

As the project duration, determined via the forward calculation, should not be exceeded unnecessarily, the following applies:

SEZ (last operation) = R (last operation)

If two or more tasks lead to an immediately preceding operation, the smallest calculated time is the true value.

$$(6) \quad SEZ\,(I) = MIN \begin{cases} SAZ\,(J) \\ SAZ\,(K) \\ \ldots\ldots \\ \ldots\ldots \\ \ldots\ldots \end{cases}$$

Example 6:

Calculate the latest times for the previous example.

Solution:

Serial article nr		
Set up construction		
FAZ	D	FEZ
SAZ	GP	SEZ

2		
Order machines		
8	5	13
13		18

5		
Deliver machines		
13	15	28
18		33

8		
Doors/ windows		
27	6	33
27		33

1		
Planning		
0	8	8
0		8

3		
Set up construction		
8	4	12
10		14

7		
Site walls/ceilings		
14	13	27
14		27

10		
Assembly		
33	8	41
33		41

9		
Plaster/coat		
27	5	32
28		33

4		
Deliver building supplies		
8	6	14
8		14

6		
Foundation		
14	2	16
31		33

Figure 15.9: Calculation of the Latest Times

Buffer times/Floats and Critical ways

> Tasks that are temporally movable within certain limits, without endangering the intended project finish date, have buffer times/floats.

There are different types of buffer times of which

- total buffer/float time (GP) and
- free buffer/float time (FP)

are important for the operational practice.

These buffer times/floats are calculated by the popular DV programs.
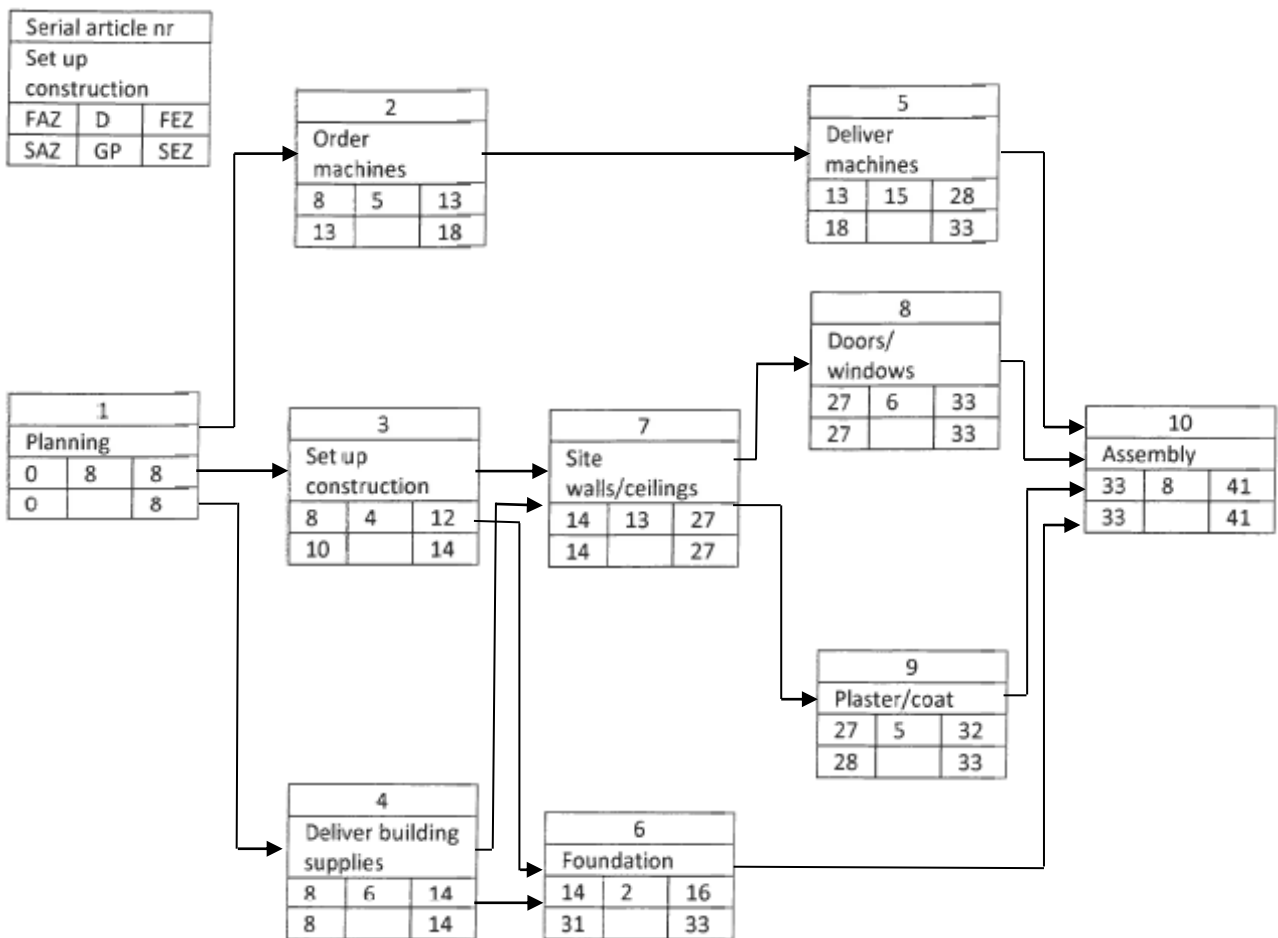
Total Buffer Time/Floats

The entire buffer time (GP) of a task is available under the most favourable conditions. The predecessor ends at the earliest time and the successor at the latest time.

The total buffer time of a task can be expressed using the following:

$$(20)\ GP\ (I)\quad =\quad SAZ\ (I) - FAZ\ (I)\qquad or$$
$$=\quad SEZ\ (I) - FEZ\ (I)$$

The total buffer/float time should also be calculated since it is the most important factor.

Free Buffer/Float Time

A limitation in time forward is available at the free buffer/float time (FP). While the predecessor is completed at its earliest possible end times, it must also have the successor. In other words, it must begin at its earliest possible starting times.

For the given example, machine installation, only the GP (total buffer/float time) which is the most important, should be to calculate...

Serial article nr

Set up construction		
FAZ	D	FEZ
SAZ	GP	SEZ

2 — Order machines

8	5	13
13	5	18

5 — Deliver machines

13	15	28
18	5	33

8 — Doors/windows

27	6	33
27	0	33

1 — Planning

0	8	8
0	0	8

3 — Set up construction

8	4	12
10	2	14

7 — Site walls/ceilings

14	13	27
14	0	27

10 — Assembly

33	8	41
33	0	41

9 — Plaster/coat

27	5	32
28	1	33

4 — Deliver building supplies

8	6	14
8	0	14

6 — Foundation

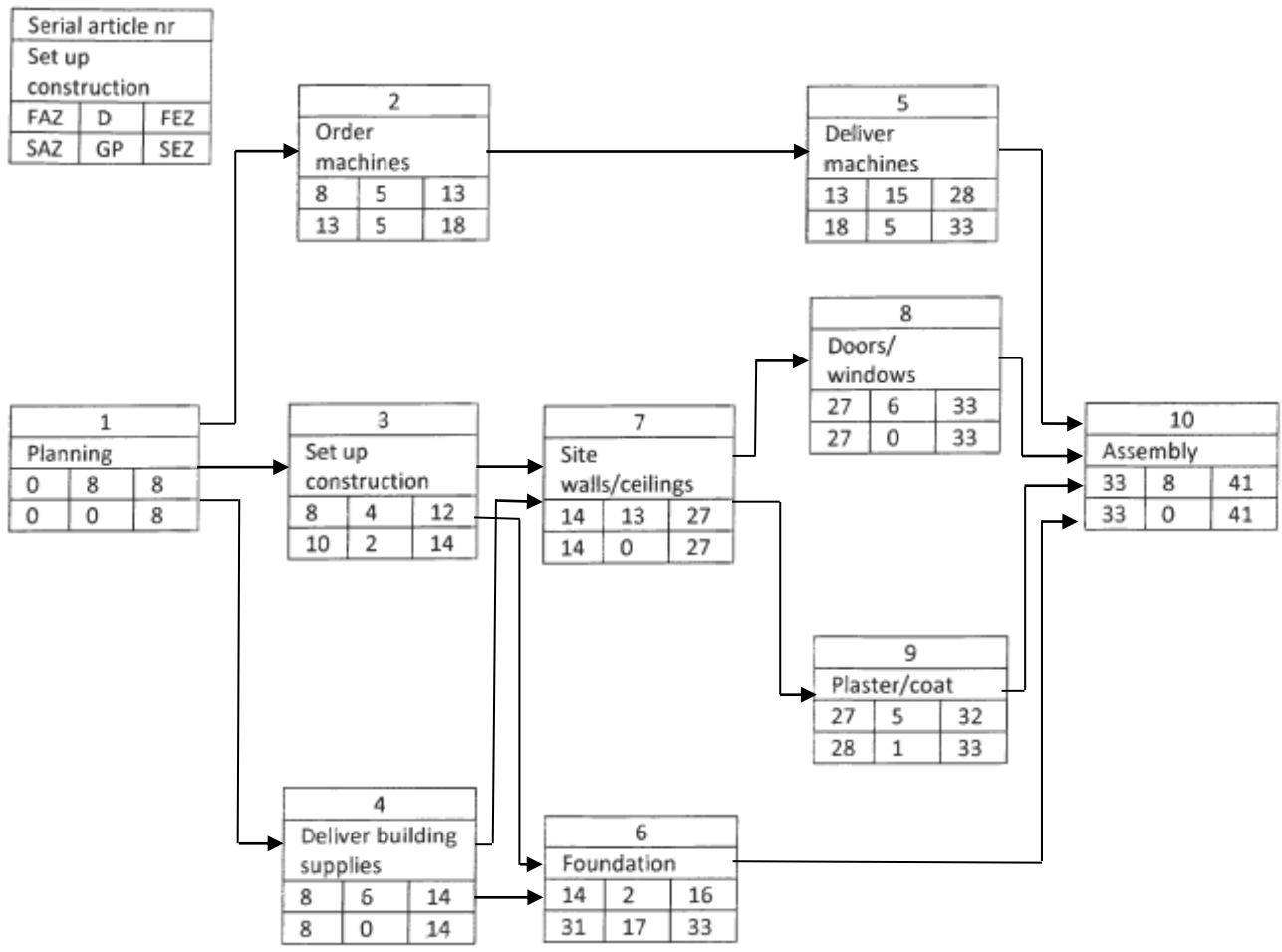|		
14	2	16
31	17	33

Figure 15.10: Full network with GP

Critical Path

The critical path represents the longest time path from the start to the finish in a network.

The operations along the critical path (critical processes) have the lowest total slack (usually zero). If the date of the critical operation cannot be met, the project duration is extended accordingly, if no further measures are taken.

Thus the monitoring of critical processes involved in project implementation is of particular importance because of its great influence on the finish date.

The critical path is especially shown in the network, often in the form of highly excellent connection arrows.

In the given example, the critical path is shown as follows:

  1 – 4 – 7 – 8 – 10.

15.1.4.4 Scheduling of a Network Plan with NF ≠ 0

The previously specified formulas to calculate the earliest and latest times were simplified, as the normal sequence was equal to null.

If this simplification is no longer given, then for the calculation, taking into account the normal sequence in the minimum time interval (NH MINZ) the earliest and latest times, applies:

FAZ (J) = FEZ (I) + NF MINZ (I, J)
SEZ (I) = SAZ (J) − NF MINZ (I, J)

Example 7:

The approval for the establishment of a data processing procedure takes 4 (time units) TU. After approval, the equipment contract is issued which takes 2 TU, and within 10 TU the programs are created. After 9 TU of programming are passed, the program test begins. The test takes 3 TU. After the approval of the procedure, work instructions are created. This takes 5 TU. The delivery period for equipment is 10 TU and is calculated from the date when the orders for equipment were placed. After the equipment is delivered and the program tested, the 3 permanent TU trial operations are performed. After creating the operating procedure, the staff is trained which takes 1 TU. Once the trial run is carried out and the staff trained, the procedure is introduced. This takes 2 TU.

Solution:

First, the structure plan is created.

Table 15.2: structure table

numerical order N	Operation	Duration (PA)	immediate predecessor
1	Approve procedures	4	
2	Issue orders for equipment	2	1
3	Create program	10	1
4	Test program	3	3
5	Create operating procedure	5	1
6	Perform trial operation	3	2.4
7	Train staff	1	5
8	Introduce procedure	2	6.7

Thereafter, the minimum intervals between the individual operations in NF can be determined.

Except for the linkage of the operations 2 and 6 as well as 3 and 4, the normal sequence is zero is in all other task dependencies.

If you look at operation 2 (issue orders for equipment) and operation 6 (perform trial operation), a delivery deadline of 10 TU is specified here. This delivery period is specified in the network as a result of the waiting time, i.e., NF (2.6) = 10.

The situation is different in linking the processes 3 and 4; where there is an overlap of 1 TU because the test starts after 9 TU of programming. The overlap arises from the specification for the program creation, which amounts to 10 TU.

The time intervals can be represented in a similar table as the structure.

Table 15.3: task dependencies in NF

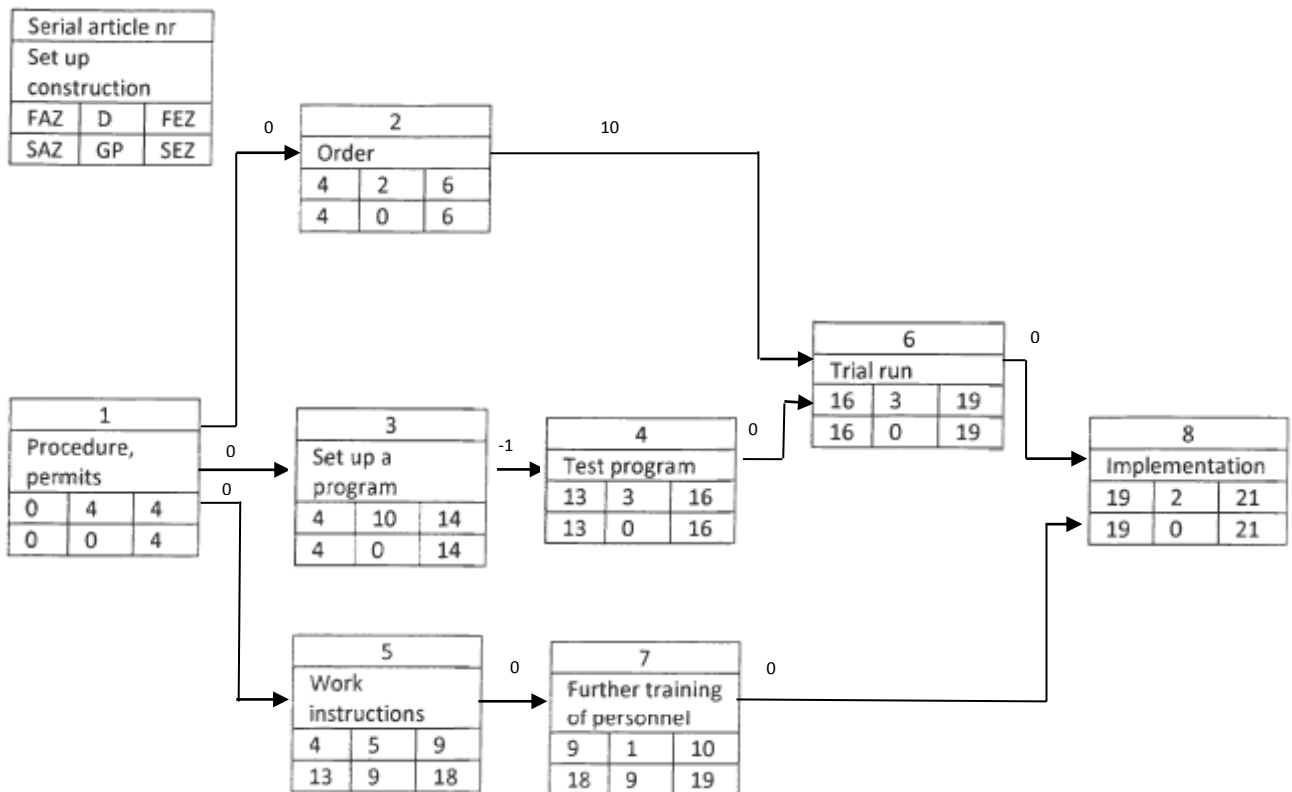| Link	Normal sequence NF
1.2	0
1.3	0
1.5	0
2.6	10
3.4	-1
4.6	0
5.7	0
6.8	0
7.8	0

Figure 15.11: Scheduled Network

The critical path of:

       1 – 3 - 4 – 6 - 8, as well as
       1 – 2 - 6 - 8,

i.e., only tasks 5 and 7 have slack.

15.5 Planning Techniques to lower costs

In this section you will learn about procedures for value and ABC analysis. Both methods are used for effective rationalization and cost minimization. While important and unimportant tasks can be distinguished by means of the ABC analysis, the consistent application of value analysis can help to reduce the procurement cost without loss of function.

15.5.1 The ABC analysis

For time and cost reasons, it is often impossible to examine all the details of a problem, e.g. material flow of all parts needed. It is therefore, necessary to set research priorities, which is an essential criterion for determining the focus of the economic importance.

The economic importance of a material is measured on its sales or value. This measure reflects the general fact of experience that in any range of material there are always a relatively small (large) number of materials in each range of material that has a large (small) proportion of the total sales of all materials. In general, one forms three sets of values: high-quality material (A), low quality material (C) and average quality material (B). Hence, the method derives its name-ABC analysis. The discussed steps are carried out in practice generally by data processing programs.

Finally, the size of the volume and value of shares is to be decided which defines the group (decision). There are no general rules, but only the following recommendations based on experience:

1. For the value of shares(WA) and size of volume(MA), the groups A, B, C, should apply:

    WA (value of share) (A) > WA (value of share) (B) > WA (value of share) (C)
    Or MA (size of volume) (A) < MA (size of volume) (B) etc.

2. In the case of three sets A, B and C, it is useful to set the percentage of the value within the following groups:

    60% < A < 85%; 10% < B < 25%; 5% < C < 15%

Example 8:

A trading company has a small selection with only 10 different articles. A product group analysis which was carried out, led to the following results:

Table 15.4: Product Group Analysis

Product Groups Analysis					
Product no.	Product group	Amount / unit	Price in EUR	Turnover in EUR	Rank
0010	1	4500	10.-	45,500.-	6
0020	1	100	1,200.-	120,000.-	3
0030	1	100	150.-	15,000.-	8
0040	2	200	250.-	50,000.-	5
0050	2	400	1.000.-	400,000.-	1
0060	2	500	500.-	250,000.-	2
0070	3	2500	2.-	5,000.-	10
0080	3	500	50.-	25,000.-	7
0090	3	800	100.-	80,000.-	4
0100	3	1000	10.-	10,000.-	9
Total				1,000,000.-	

This overview can be difficult to interpret, because important links are not visible.

A number of calculations are made to increase the value of the overview. Before these calculations are made, the products must first be sorted by "rank". The article with the largest sales takes rank 1, followed by the article with the second largest turnover in position 2, etc.

1. Step: Calculation of the value of share of each article on the total value of the range

2. Step: Calculation of the cumulative value of share in %

3. Step: Calculation of size of volume in %

4. Step: Calculation of cumulative size of volume in %

The calculation of these numbers leads to the following results:

Table 15.5: Evaluation of the Product Group Analysis 1

Product no.	Rank No.	Turnover in EUR	Percentage value in %	Cumulative Percentage of value in %	Volume in %	Cumulative Volume in %
0050	1	400	40	40	3.8	3.8
0060	2	250	25	65	4.7	8.5
0020	3	120	12	77	1.0	9.5
0090	4	80	8	85	7.5	17.0
0040	5	50	5	90	1.9	18.9
0010	6	45	4.5	94.5	42.4	61.3
0080	7	25	2.5	97	4.7	66.0
0030	8	15	1.5	98.5	1.0	67.0
0100	9	10	1.0	99.5	9.4	76.4
0070	10	5	0.5	100.0	23.6	100.0
			1	2	3	4
			①	②	③	④

Explanations:

① Share percentage of the article of the total turnover

② Cumulative percentage of value in %

The number 40 in the column "cumulative percentage of value in %" indicates the proportional share of article 0050. The number 65 for the article 0060 results through the accumulation or by adding up. It is formed by the addition of two numerical values '40' and '25' from the column value in % for the

articles 0050 and 0060. The numerical value of 65 indicates that articles 0050 and 0060 together in terms of value, achieve 65% of total sales.

③ Percentage of the total amount of the article

④ Cumulative volume in %
Numerical value in the column "cumulative volume in %" is calculated by the addition of numbers 4.7 and 3.8 from the column "Volume in %".

If one summarizes the results of the share of value and share of volume, one obtains the following figures:

Table 15.6: Evaluation of a Product Group Analysis 2

Value group	The value share in %	Volume share in %
A	65	8.5
B	25	10.4
C	10	81.1
Total	**100**	**100**

Category A includes the articles 0050 and 0060; category B the articles 0020, 0090 and 0040. The articles 0010, 0100, 0080, 0030, and 0070 belong to category C.

The analysis of this table shows, in value terms a predominance of category A in a low quantitative proportion. The categories B and C on the other hand, are less significant in proportion by value because together they exhibit only about a third of the value of share. The volume of share, however, is very high.

However, management can draw a number of consequences from these figures.

From an economic point of view, the most attention should be paid to the articles of value group A, because the largest revenues can be achieved with these articles.

The articles of the Group B and C should undergo a thorough analysis. Here there are opportunities to optimize the contribution to improving the company's situation, because the percentage of value is low, the portion is very large.

In addition to this underlying application, the ABC analysis is provided in other areas of the company.

It is also conceivable to take into account applications in the procurement area, the analysis of the customer base, in the selection of suppliers etc.

Summary: The ABC analysis allows:

- to distinguish, essentials from the non-essentials
- the focus of rationalization work to concentrate specifically on the areas of vital economic importance
- to reduce the amount of work through work simplification measures in areas of minor economic importance and
- thereby significantly increasing profit

Task 1.1:
The presenter or speaker plays an active role, while the audience listens passively.

Task 1.2:
In an informal presentation, a member of the audience might interrupt the speaker if they have a question or request, or at the end of the presentation the participants often take part in an open discussion.

Task 1.3:
A participant should not interrupt when it is a very formal presentation or simply to express their own personal opinion on the subject.

Task 2.1:
Open answer. While humor is an essential aspect of Anglo-American speeches, it is less essential, sometimes even inappropriate in German speaking countries.

Task 2.2:
Admittedly, this task might be a bit challenging for some students. A suggestion would be to have the students look up some famous or standard toasts on the internet and report back in the next class. In the meantime:
*To the best Mom in the whole world, health, happiness and a long, long, but not **too** long life! After all, I'll be the one who has to foot the nursing home bills.*
To Maja and Joey, wishing you all the best, may joy and peace be with you now and forever more.
Hear, Hear! (knock on a glass to get everyone's attention) *George, along with the rest of the team, I want to congratulate you from the bottom of my heart on your well-deserved promotion. To a great guy and a better boss!*

Task 2.3:
Both talks and lectures take place in an academic setting, i.e. at a university or professional conference. A talk is for the purpose of sharing the results of a research project to colleagues, while in a lecture a professor instructs students concerning a specific topic.

Task 3.1:
They are to inform, convince or motivate your audience.

Task 3.2:
Another example would be a research student who has been assigned to give a presentation about his/her latest findings. While the main purpose would be to inform the colleagues about work in progress, other underlying aims might be to convince the professor about the value of the work and motivate him to extend one's research grant.

Task 4.1.1:
Meta-communication means that communication occurs on a number of different levels at the same time and involves not just verbal exchanges but also body language.

Task 4.1.2:
The four aspects are the factual, self-revelatory, the relationship and the appeal level. The former conveys actual information, the self-revelatory aspect is what you reveal – consciously or unconsciously – about yourself when you communicate with others, the relationship aspect has to do with how you stand with the others, and the appeal level concerns what you want to achieve with the communication.

Task 4.1.3:
Another example would be an exchange between a boss who wants to know how long a certain piece of work is going to take and an employee who answers by claiming he/she is working as fast as they can and, in any event, the machines are not in the best shape. In brief: the boss, factually wants to know when the work will be finished, self-revelatory- wise he is saying he is annoyed that the work hasn't been completed yet, on the relationship level he is saying he is the boss and has the right to ask and on the appeal level he wants the worker to work faster. The worker reveals on a factual level that he doesn't know how long it will take, he reveals that he feels put out and under pressure to work faster than he can, on a relationship level he puts the blame on the boss for not investing in better machines and on the appeal level he wants better machines and less pressure.

Task 4.2:
You should consider the audience's expectations, their previous level of experience, and any relevant demographic aspects.

Task 4.2.1:
Some audiences might expect to be entertained while others are looking for concrete information or tips. It depends very much on the setting and cultural context.

Task 4.2.2.1: This means that a group is made up of people of different ages, sex or socio-economic background

Task 4.2.2.2:
One strategy would be to prepare alternative material in advance that you can use should the need arise. Another alternative would be to refer people to other sources of information (website, published papers, prepared handouts) if they are over or under challenged.

Task 4.3:
The five factors are style, body language, attitudes towards time, degree of uncertainty avoidance and degree of power distance.

Task 4.3.1:
open answer

Task 4.3.2:
open answer

Task 4.3.3
open answer

Task4.3.4:
High uncertainty avoidance means people feel uncomfortable with change, low uncertainty avoidance means people welcome change.

Task 4.3.5:
High power distance means that a society is very hierarchical. A person's position counts for more than what they can do. In a low power distance society status is less important. What you can do counts more than who you are.

Task 5:
They are the voice of the speaker, fonts, visuals of all kinds, sound and actual objects.

Task 6.1.1:
They are deciding on the purpose of the presentation, collecting your information, compromising your data and structuring your presentation.

Task 6.1.2:
Comprising means to carefully choose the amount of data to include in your presentation and to abbreviate your text.

Task 6.2:
They are linkage – making links to what your audience already knows, briefing – giving your audience any necessary instructions, providing an overview at the beginning of your presentation and a summary at the end and signposting in between which means letting your audience know where you are currently at in the presentation.

Task 6.3.1:
The background should be in contrast to the fonts, consistent and not too textured.

Task 6.3.2:
You should capitalize the first letter of the words of your title and bullet points and all proper nouns.

Task 6.3.3:
The 7 x 7 rule means a maximum of seven words per line and seven lines per slide.

Task 7.1:
You can practice in front of a mirror, ask a friend to watch you or you can videotape yourself.

Task 7.2:
They are articulation, chunking, stress, pacing, intonation and volume.

Task 7.3:
You can keep eye contact to show you are interested in your audience, your finger to point at something you want the audience to look at and you can shrug your shoulders to indicate that you don't know something or not very interested.

Task 7.4:
They are repetition for emphasis, rhetorical questions for awakening your audience's interest, dramatic contrasts for reinforcing you points, and tripling for giving your listeners as sense of completeness. Other tactics would be machine-gunning, build-ups, knock-downs, and simplification.

Task 8.1:
The phases are the introduction, the body and the greeting would be "Well, let's get started."

Task 8.2:
A formal greeting would be "Good morning, ladies and gentlemen" and an informal
and you should be selective.

Task 9.1:
The main reason is for better retention.

Task 9.2:
Visuals make a presentation livelier, arouse interest and can sometimes illustrate matters better than any verbal explanation, e.g. a film clip demonstrating how the mechanics of a machine work.

Task 9.3:
You should consider whether the visuals really much your message closing.

Task 10.1:
Pie chart, grid, organigram, bar chart, line graph

Task 10.1.1:
line graph, grid, bar chart, organigram, pie chart

Task 10.1.2: Line graph – annual sales figures

Task 11:
With the Crawford slip method a group's ideas are noted on slips of paper and collected. In a brainstorming session participants try to collect as many ideas as possible whether, at first evaluating, their feasibility. With mind-mapping a group or individual uses a central word or topic to elaborate on the idea. In a discussion 66 group 6 people discuss for six minutes a specific question or topic. I personally like all these methods.

Task 12.1:
They are so powerful because they appeal to both sides of our brains and are instantly recognizable.

Task 12.2:
open answer

Task 13:
You can use overhead projectors, whiteboards, blackboards and flipcharts.